

**UNIVERSIDAD DE SAN CARLOS DE GUATEMALA**  
**FACULTAD DE INGENIERÍA**  
**ESCUELA DE CIENCIAS Y SISTEMAS**  
**LABORATORIO ORGANIZACIÓN COMPUTACIONAL**



Grupo 3	
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Fecha: 30/12/2022

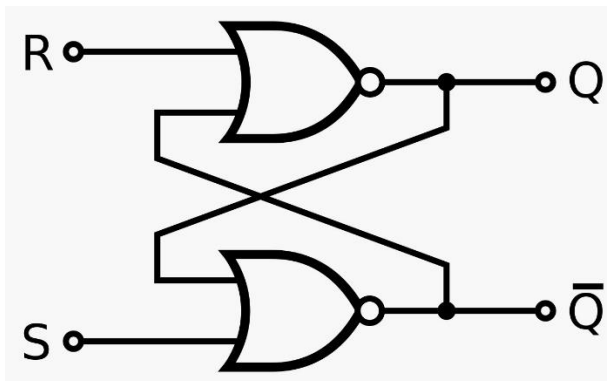
## Tablas de verdad y Mapas de Karnaugh

### Luces LED

Entrada	Luces LED
1	1
0	0

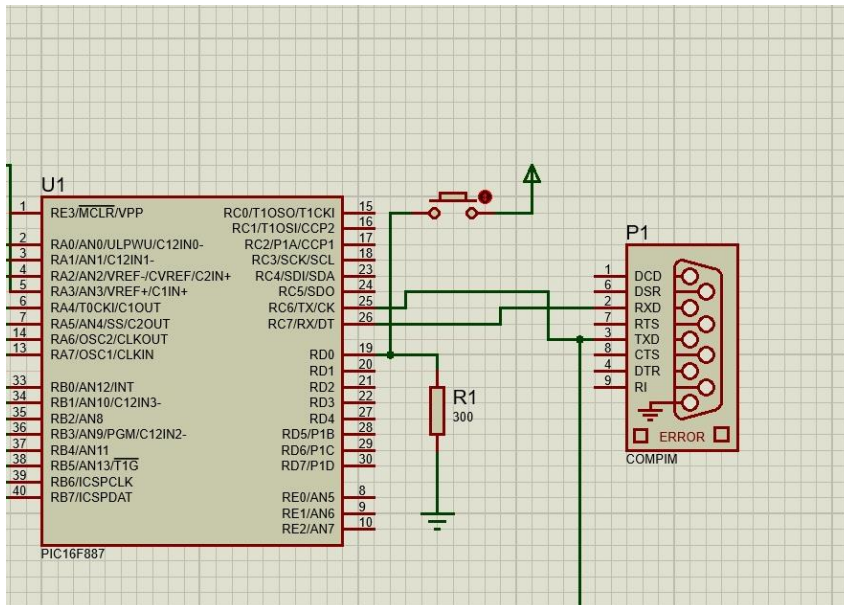
### Latch SR

S	R	$Q_n$	$\overline{Q_n}$	
0	0	$Q_{n-1}$	$\overline{Q_{n-1}}$	Sin cambio
0	1	0	1	RESET
1	0	1	0	SET



## Diagramas

### Conexión serial



### Programación de la conexión serial

```
// Función principal
//*****
void main(void) {
    setup();           // Realiza la configuración de puertos
    OSCCONbits.IRCF = 0b111; // Oscilador 8 MHz
    initUART();        // Configuración para el módulo UART

    while(1){
        while (PORTDbits.RD0 == 0){
            if (PIR1bits.RCIF == 1){
                PORTB = RCREG;           // Muestra el ASCII en el puerto
                PIR1bits.RCIF = 0;
                PORTDbits.RD7 = 1;
                _delay_ms(500);
                PORTDbits.RD7 = 0;
            }
        }
        if (PORTDbits.RD0 == 1){
            TXREG = PORTA;
            _delay_ms(500);
        }
    }
}

//*****
// Configuración de puertos
//*****
void setup(void){
    ANSEL = 0;
    ANSELH = 0;

    TRISA = 1;
    PORTA = 0;

    TRISB = 0;
    PORTB = 0;

    TRISD = 0b00000001;
    PORTD = 0;
}

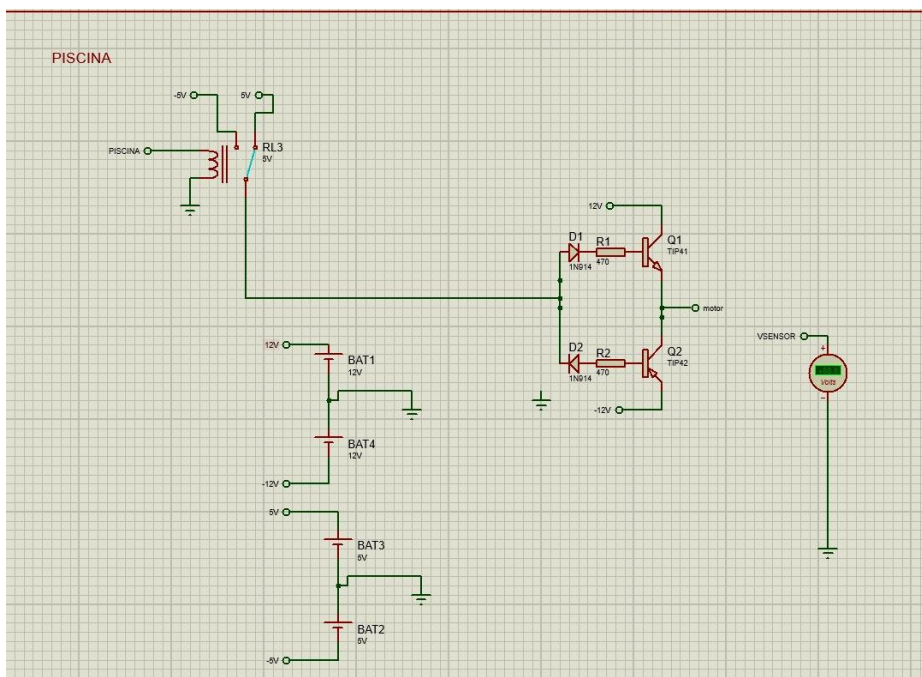
//*****
// Configuración de módulo UART
//*****
void initUART(void){
    // Configuración velocidad de baud rate
    SPBRG = 12;

    TXSTAbits.SYNC = 0; // Modo asíncrono
    RCSTAbits.SPEN = 1; // Habilitar módulo UART

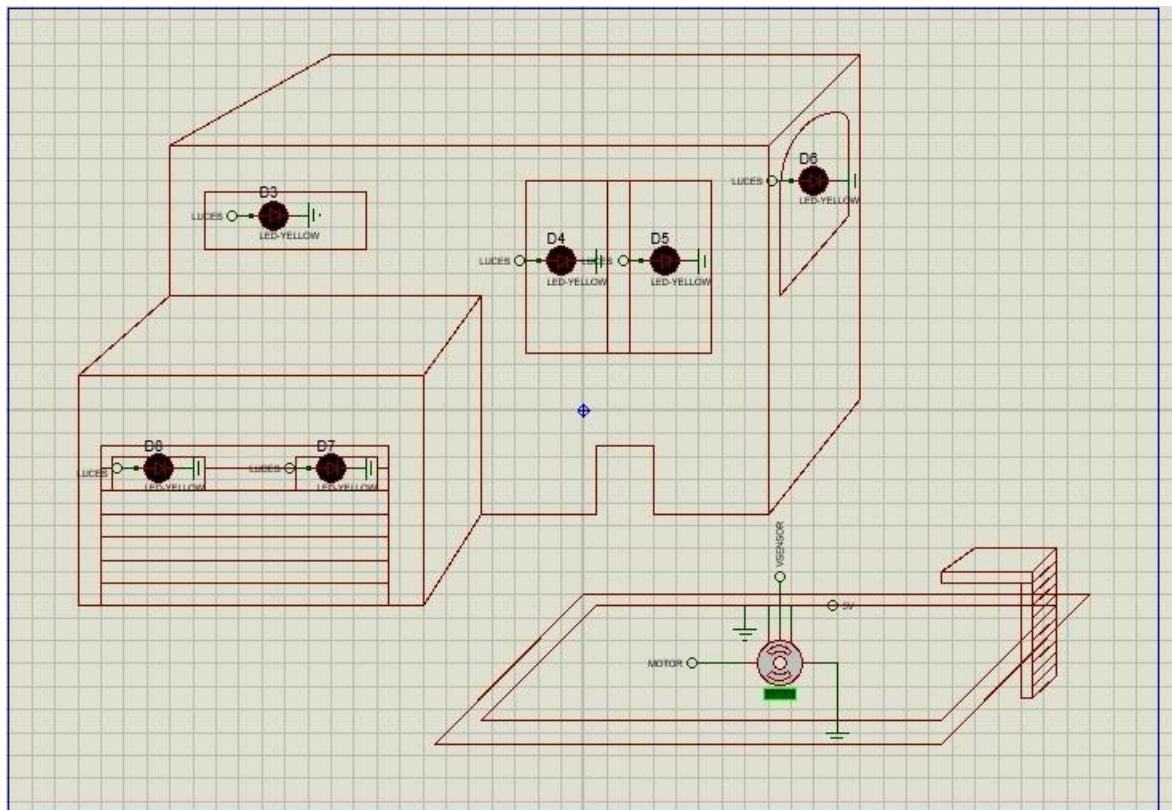
    TXSTAbits.TXEN = 1; // Habilitar la transmisión
    PIR1bits.TXIF = 0;

    RCSTAbits.CREN = 1; // Habilitar la recepción
}
```

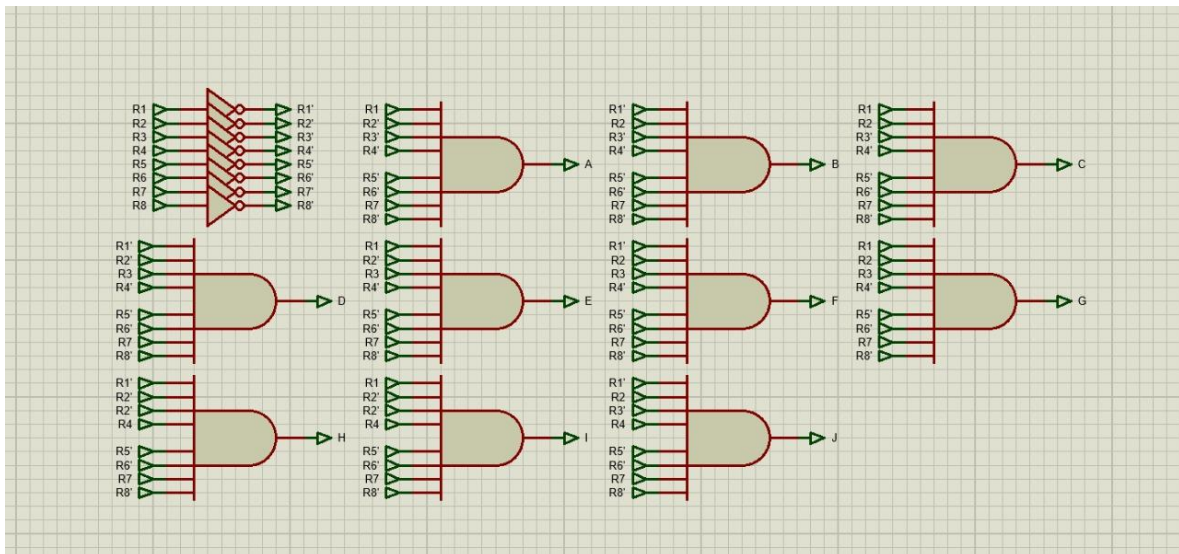
### Circuito del motor



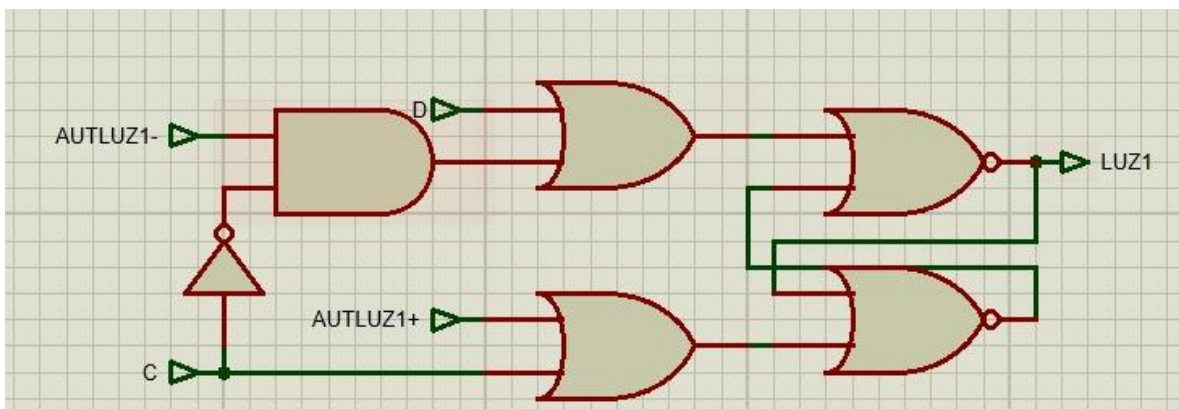
## Diseño de casa



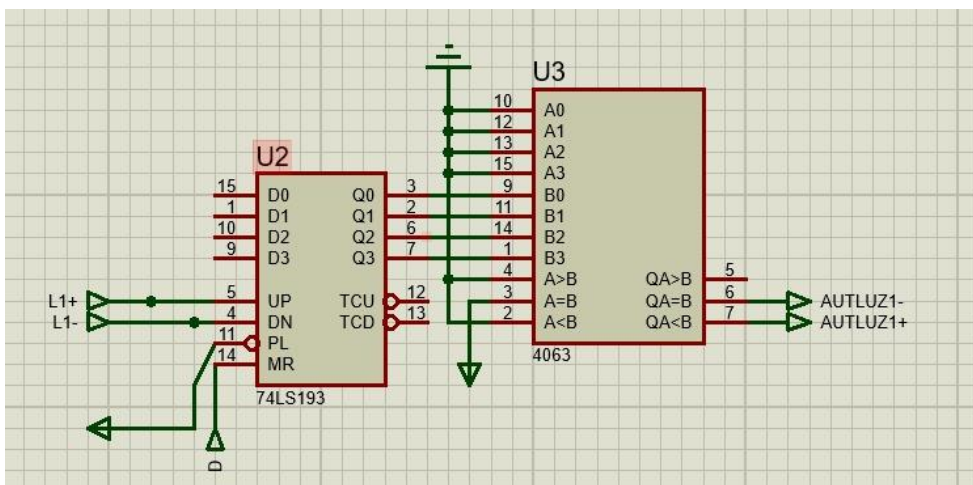
## Reconocimiento de caracteres ASCII



## Automatización de luces



## Contador de personas en habitación

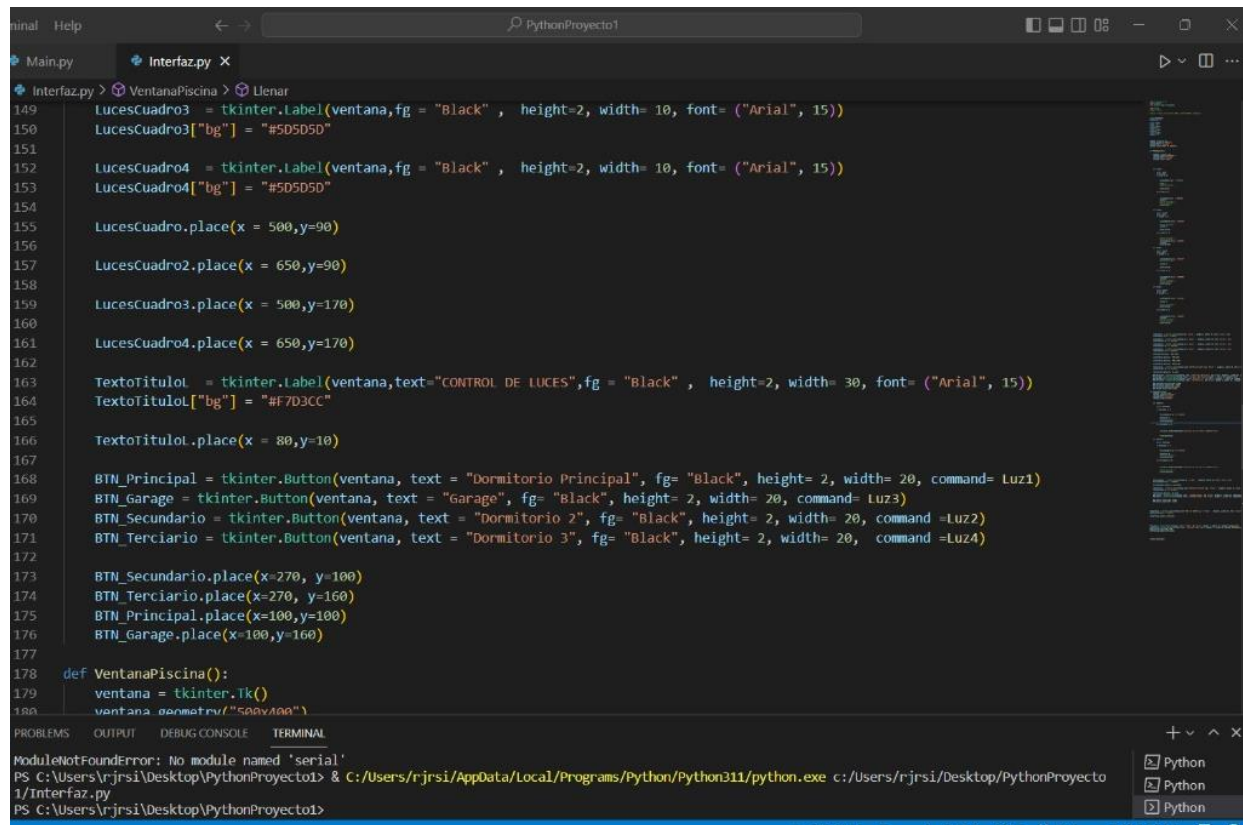


## Panel de control





## Programación de Python



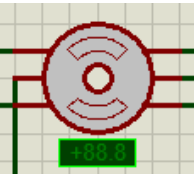
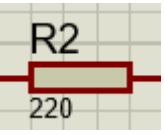

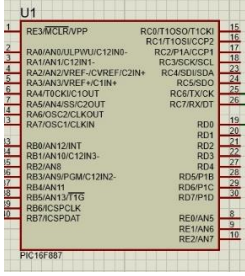
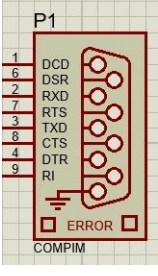
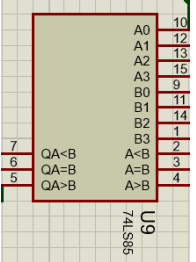
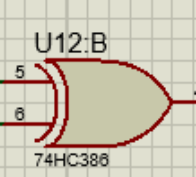
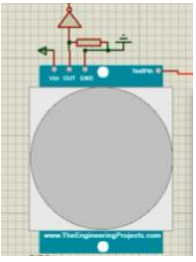

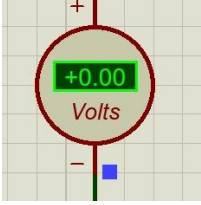

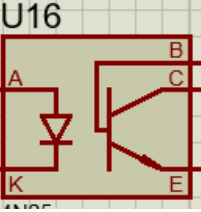
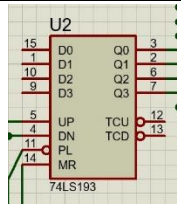
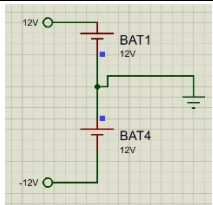
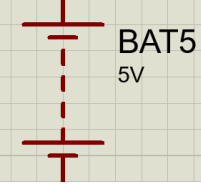
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149 LucesCuadro3 = tkinter.Label(ventana,fg = "Black" , height=2, width= 10, font= ("Arial", 15))
150 LucesCuadro3["bg"] = "#5D5D5D"
151
152 LucesCuadro4 = tkinter.Label(ventana,fg = "Black" , height=2, width= 10, font= ("Arial", 15))
153 LucesCuadro4["bg"] = "#5D5D5D"
154
155 LucesCuadro.place(x = 500,y=90)
156
157 LucesCuadro2.place(x = 650,y=90)
158
159 LucesCuadro3.place(x = 500,y=170)
160
161 LucesCuadro4.place(x = 650,y=170)
162
163 TextoTitulol = tkinter.Label(ventana,text="CONTROL DE LUCES",fg = "Black" , height=2, width= 30, font= ("Arial", 15))
164 TextoTitulol["bg"] = "#F7D3CC"
165
166 TextoTitulol.place(x = 80,y=10)
167
168 BTN_Principal = tkinter.Button(ventana, text = "Dormitorio Principal", fg= "Black", height= 2, width= 20, command= Luz1)
169 BTN_Garage = tkinter.Button(ventana, text = "Garage", fg= "Black", height= 2, width= 20, command= Luz3)
170 BTN_Secundario = tkinter.Button(ventana, text = "Dormitorio 2", fg= "Black", height= 2, width= 20, command =Luz2)
171 BTN_Terciario = tkinter.Button(ventana, text = "Dormitorio 3", fg= "Black", height= 2, width= 20, command =Luz4)
172
173 BTN_Secundario.place(x=270, y=100)
174 BTN_Terciario.place(x=270, y=160)
175 BTN_Principal.place(x=100,y=100)
176 BTN_Garage.place(x=100,y=160)
177
178 def VentanaPiscina():
179     ventana = tkinter.Tk()
180     ventana.geometry("500x400")
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ModuleNotFoundError: No module named 'serial'

PS C:\Users\rjrsi\Desktop\PythonProyecto1> & C:/Users/rjrsi/AppData/Local/Programs/Python/Python311/python.exe c:/Users/rjrsi/Desktop/PythonProyecto1/Interfaz.py

PS C:\Users\rjrsi\Desktop\PythonProyecto1>

## Equipo utilizado

				
Servomotor	Resistencias	Ground	PIC	Micro-controlador
				
Comparador	Compuertas lógicas	PIR sensor	LED	Voltímetro
				
Relé	Transistor	Contador	Fuente de alimentación de 12V	Fuente de alimentación de 5V